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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/527,534	03/16/2000	Koji Suzuki		2400

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EXAMINER

SEFER, AHMED N

ART UNIT	PAPER NUMBER
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2826

DATE MAILED: 12/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/527,534

Applicant(s)

SUZUKI, KOJI

Examiner

A. Sefer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 7-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Ogawa (JP 5-335578).

Ogawa discloses in fig. 6 a thin film transistor comprising a semiconductor film 2 or poly-silicon film (as in claim 9), a first gate insulating film 3 or silicon oxide film (as in claim 8), a second gate insulating film 4 and a gate electrode 5 formed one major surface of a substrate 1, wherein said first gate insulating film covers said one major surface of the substrate of said semiconductor film other than a contact region 11, and said second gate insulating film is made of a material or silicon nitride film (as in claim 8) for supplying hydrogen to said semiconductor film and is formed only in a region covered by said gate electrode to have substantially the same shape as said gate electrode.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kunii et al US Patent No. 5,412,493 in view of Kawamura US Patent No. 5,858,807.

Kunii et al disclose (see figs. 1-4) a thin film transistor comprising a semiconductor film or poly-silicon film (as in claim 12), a first gate insulating film 7 or silicon oxide film (as in claim 11), a second gate insulating film 8 and a gate electrode 9 formed on a surface of substrate 1, wherein said first gate insulating film covers said semiconductor film, and said second gate insulating film is made of a material or silicon nitride film (as in claim 11) for supplying hydrogen to said semiconductor film, but do not specifically disclose an insulating film with a smaller film thickness in a region not covered with a gate electrode than one covered with a gate electrode.

Kawamura discloses (see fig. 1 and col. 3, lines 33-37) a silicon nitride insulating film 13 with a smaller film thickness in a region not covered with a gate electrode than a silicon nitride insulating film 8 in a region covered with said gate electrode formed on a silicon oxide insulating film (not shown) covering a semiconductor region.

Although applicant refers to the portion of the said insulating layer not covered with a gate electrode as gate oxide, it is nothing but a passivation layer which does not affect the channel region and through which contact regions can be formed as shown in fig. 3 of the invention. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teachings of Kawamura with Kunii et al's device, since that would minimize a degradation caused by hot carriers. Furthermore, the specification contains no disclosure of either the critical

nature of the claimed arrangement or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

5. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogawa (JP 5-335578) in view of Kawamura US Patent No. 5,858,807.

Ogawa discloses in fig. 6 a thin film transistor comprising a semiconductor film or poly-silicon film (as in claim 12), a first gate insulating film 3 or silicon oxide film (as in claim 11), a second gate insulating film 4 and a gate electrode 5 formed on a surface of substrate 1, wherein said first gate insulating film covers said semiconductor film, and said second gate insulating film is made of a material or silicon nitride film (as in claim 11) for supplying hydrogen to said semiconductor film, but do not specifically disclose an insulating film with a smaller film thickness in a region not covered with a gate electrode than one covered with a gate electrode.

Kawamura discloses (see fig. 1 and col. 3, lines 33-37) a silicon nitride insulating film 13 with a smaller film thickness in a region not covered with a gate electrode than a silicon nitride insulating film 8 in a region covered with said gate electrode formed on a silicon oxide insulating film (not shown) covering a semiconductor region.

Although applicant refers to the portion of the said insulating layer not covered with a gate electrode as gate oxide, it is nothing but a passivation layer which does not affect the channel region and through which contact regions can be formed as shown in fig. 3 of the invention. Therefore, it would have been obvious to one of ordinary skill in

the art at the time the invention was made to incorporate the teachings of Kawamura with Ogawa's device, since that would minimize a degradation caused by hot carriers. Furthermore, the specification contains no disclosure of either the critical nature of the claimed arrangement or any unexpected results arising therefrom. Where patentability is said to be based upon particular chosen dimensions or upon another variable recited in a claim, the applicant must show that the chosen dimensions are critical. In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

a. Kawamura et al. US ref. 5,773,844 disclose a TFT having a three-layered structure comprising nitride/oxide/nitride under a gate electrode.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (703) 605-1227.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on (703) 308-6601.

ANS  
December 6, 2002

NATHAN J. FLYNN  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800

